

Amendments to the Claims:

Claim 1 (presently amended): A method of speciated isotope dilution measurement of a sample comprising

providing ~~at least one~~ a plurality of predetermined stable ~~isotope~~ isotopes,
preparing a different isotopic spike for each species to be measured by
converting each said stable isotope to a speciated enriched isotope corresponding to
the species to be measured in said sample,
spiking the sample containing said species to be measured,
equilibrating said isotopic spiked species with said species to be measured,
separating only a portion of said species from said sample in order to effect
incomplete separation,
making isotope ratio determinations for each said specie to be measured and
mathematically deconvoluting said species concentration ~~while~~ and if species
conversion has occurred correcting for species conversion, and
effecting said mathematical deconvolution while correcting for said
incomplete separation of said species from said sample.

Claim 2 (original): The method of speciated isotope dilution measurement of claim 1 including

employing said method on more than one said species to be measured
simultaneously.

Claim 3 (original): The method of speciated isotope dilution measurement of claim 2 including

employing said method in quantifying Cr(III) and Cr(VI).

Claim 4 (cancelled).

Claim 5 (original): The method of speciated isotope dilution measurement of claim 1 including

employing a mass spectrometer to determine said isotopic element ratios.

Claim 6 (cancelled).

Claim 7 (original): The method of speciated isotope dilution measurement of claim 1 including

employing time resolution chromatography to effect said separation.

Claim 8 (original): The method of speciated isotope dilution measurement of claim 1 including

employing said process on a sample which has experienced specie conversion prior to separation.

Claim 9 (original): The method of speciated isotope dilution measurement of claim 1 including

effecting said equilibrium in an aqueous solution.

Claim 10 (previously amended): The method of speciated isotope dilution measurement of claim 2 including

employing said process on a plurality of said species to be measured, and incompletely separating said species from other said species in said sample.

Claim 11 (original): The method of speciated isotope dilution measurement of claim 3 including

effecting said separation after reduction of a substantial portion of Cr(VI) to Cr(III).

Claim 12 (original): The method of speciated isotope dilution measurement of claim 1 including

employing said process on a soil sample.

Claim 13 (original): The method of speciated isotope dilution measurement of claim 1 including

employing said process on an aqueous sample.

Claim 14 (original): The method of speciated isotope dilution measurement of claim 1 including

employing said process on solid waste from a chromite ore processing system.

Claim 15 (original): The method of speciated isotope dilution measurement of claim 1 including

storing said sample after said equilibrating step and prior to said separating step.

Claim 16 (original): The method of speciated isotope dilution measurement of claim 1 including

effecting said mathematical deconvoluting simultaneously with respect to more than one species to be measured.

Claim 17 (original): The method of speciated isotope dilution measurement of claim 16 including

effecting said mathematical deconvoluting for each species independently of other species.

Claim 18 (cancelled).

Claim 19 (presently amended): The method of speciated isotope dilution measurement of claim 16 including

effecting said separation of ~~at least about 5 to 10 percent, but less than 100 percent~~ of each said species from said sample and from said other species before effecting said deconvolution.

Claim 20 (original): The method of speciated isotope dilution measurement of claim 1 including

effecting said separation by at least one method selected from the group consisting of chromatography, microwave assisted extraction, soxhlate extraction, solvent dissolution, acid dissolution, acid or base hydrolysis distillation, centrifugation, and solvent extraction.

Claim 21 (original): The method of speciated isotope dilution measurement of claim 1 including

effecting said separating by microwave assisted extraction for a period of about 5 to 15 minutes.

Claim 22 (original): The method of speciated isotope dilution measurement of claim 21 including

effecting said separating at about 90°C to 150°C.

Claim 23 (original): The method of speciated isotope dilution measurement of claim 1 including

after effecting said speciated isotope dilution measurement of a sample comparing the results of said measurement with measurements made by another type of test to evaluate the validity of said another type of test.

Claim 24 (original): The method of speciated isotope dilution measurement of claim 23 including

effecting a plurality of measurements by said another test and effecting said comparison in evaluating the validity of said another type of test.

Claim 25 (original): The method of speciated isotope dilution measurement of claim 1 including

employing said method to prepare speciated spiked standard materials.

Claim 26 (original): The method of speciated isotope dilution measurement of claim 1 including

employing said method to prepare standard materials.

Claim 27 (original): The method of speciated isotope dilution measurement of claim 25 including

creating said speciated spiked standard by spiking separated stable isotopes in speciated form.

Claim 28 (original): The method of speciated isotope dilution measurement of claim 26 including

employing said standard materials after storage.

Claim 29 (original): The method of speciated isotope dilution measurement of claim 26 including

employing said method to correct species shifts in said standard materials after degradation.

Claim 30 (original): The method of speciated isotope dilution measurement of claim 21 including

employing in said microwave extraction closed vessel microwave extraction.

Claim 31 (original): The method of speciated isotope dilution measurement of claim 23 including

employing said method to validate said tests which are not independently capable of compensating for incomplete species extraction or species conversion.

Claim 32 (presently amended): The method of speciated isotope dilution measurement of claim 1 including

performing said method on a species which ~~due~~ in addition to said incomplete separation, has a further reduction in said species due to at least one cause selected from the group consisting of loss, conversion ~~or~~ and degradation has less than ~~400~~ 10 percent of said species separated.

Claim 33 (original): The method of speciated isotope dilution measurement of claim 32 including

effecting said separation of at least about 5 to 10 percent of said species.